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*                            *
*    NEXT MEETING:           *
*    --------------          *
*                            *
*                            *
*   KILLARNY COMMUNITY CENTRE *
*   6260 KILLARNY ST., VANC   *
*                            *
*                            *
*        FRIDAY               *
*    OCT.10,1986              *
*                            *
*                            *
*  *************************  *
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ZXAPPEAL IS A MONTHLY
NEWSLETTER PUT OUT BY THE
VANCOUVER SINCLAIR USERS GROUP.
FOR MORE INFORMATION ON THE
CLUB AND ZXAPPEAL SEE THE BACKCOVER.

INSIDE

THIS ISSUE......................
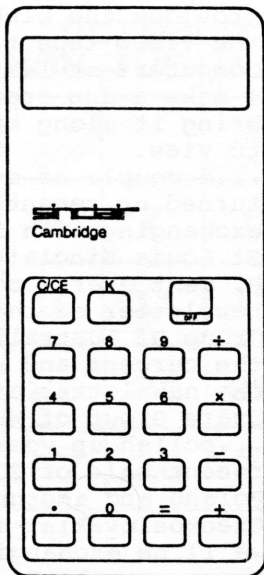
This month we have a couple of interesting articles dealing with synthetic speech. Wilf R., always trying to produce more for less, has come up with a neat little project for the 1000. Ken A. writes about his Text-to-Speech in BASIC he demoed last meeting. Gerd B. reviews the Sinc-Artist Hi-Res program that utilizes the 8K NVM add-on written up a couple of issues ago. If you haven't built the add-on yet, I urge you to try it. The cost is minimal and you'll greatly increase the utility of your machine. This month we welcome two new advertisers to our pages. NOVELSOFT created ARTWORX, which I think very highly of, TIMACHINE, only the best MC compiler availabe for the 2068, and the new THE WORX. Buy these programs - your machine will take on a whole new complexion. BUDGET ROBOTICS & COMPUTING is advertising a new book that the Robot group should be very interested in. Remember: our advertisers help keep YOUR costs done - give them your business. I realize many of you still look forward to ZX81 articles and programs but I can't make such things appear by magic. Someone has to submit articles. Most of the exchange newsletters lean toward the 2068 and are not a source of 1000 material. I'm doing my bit being the editor; lets have some more of you try your hand at an article or two.

BITS & PIECES.....................

...A new computer paper is out. CANADA COPUTES is from the originators of the highly sucessful TORONTO COMPUTES. I've made arrangements to have a copy for each member attending the next meeting.
..I recently came across an advert it gave me deja vu. A kit for an innovative British computer dreamed up by a chap named Sinclair. No, not the ZX81 but the QL! We have the opportunity to relive those heady days of discovery.
A+ Computer Response is offering the Ql in kit form for only $US 139.00. The ZX81 was the most influential computer ever created. The 2068 is the probably the best 8 bit computer ever created and available to the public. The QL is another ground-breaking machine. (the only reason bean-counting Amstrad took the QL out of production was that their own machines could'nt match it. How else do you eliminate the competition if you can't beat them? You buy 'em and bury 'em! Isn't it odd TIMEX took a similar tack with the 2068. When they found out they coudn't match costs with the dreaded C64, because the the 2068 was a superior machine, they did what any self respecting bean-counter would do -- THEY QUIT!) I know the QL is another orphan computer but that never stopped a true Sinclairphile. Think of it -- a 16 bit machine for less than $200.00 lowly Cdn dollars.
...Parkville member Pan P. has provided the club with a copy of the video tape taken at the Cinci Computerfest last May. As soon as I make a dup from Beta to VHS, I'll bring it along to a meeting for all to view.
...a couple of new newsletters turned up recently. We're now exchanging with S.L.U.G. - the St.Louis Sinclair Users Group. Dan P. sent over a copy of the newsletter of the Spectrum Users Group Of Australia, and I received the current and some back issues of the newsletter of the Sinclair Users Group of Western Australia.
...polish up your Polish. With the recent sale of 200,000 2068s to Poland and another big sale to Czeckoslovakia, in no time I'm Sure we'll be exchanging with User Groups on the Eastern Front.

THE MEETING: Got underway shortly after 7:00. Bob.D turned up with a great load of junk, er - good stuff he was trying to flog, er - sell to the members. All sorts of strange and wonderful trinkets to awe the natives. His wife must have wanted to use another of the bedroom drawers and gave Bob the word. Ken A. wanted to discuss his being elevated to Pres due to the stepping down of Bob L. Didn't think it should be automatic just because he was V/Pres. We didn't let him wriggle off the hook that easily. All Hail Pres Ken. The Treasurer gave his report - reporting that advertising income had increased favourably and that membership renewals were slow but steady. The meeting discussed the matter of Community Centre membership dues and it was agreed that if the Centre did not bring it up, neither would we. The Newsletter editor accepted a rousing round of applause from the assembled multitude for a terrific job well done and appealed to all for more submissions to the Newsletter. A most interesting Chess concept has been received from the CIRCLE CHESS TS USERS of Des Plaines. Gerd B. volunteered to coordinate any members wishing to play. Ian Mc. gave a report on the present state of the library: it presently carries over 60 titles and is growing. The club policy of not having any program in the library that Ross D. still carries was repeated. Ian said he will be bringing copies of the library list to the next meeting. Wilf R. gave a talk about his still in prototype Bank Swith unit as well as his new RS232 board for the 1000. Ken A. demoed his text-to- speech software - all in BASIC. Nice job Ken! I showed the Zebra Serial add-on board for the 2050 modem. Wilf R. asked for a show of hands of whose interested in a tutorial on Interrupts at the next meeting. The meeting adjourned due to lack of time rather than a lack of interest.

OCTOBER				1986		
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SIMPLE TEXT-TO-SPEECH IN SOFTWARE???

-- By Ken Abramson

Last spring, you might recall that Harvey Taylor demonstrated a Text-to-Speech chip, the CTS256-AL2 working in conjunction with the good old SP0256 Speech Synthesizer chip and his QL. The ease with which he could punch-in English spellings and have them spoken by the voice box amazed everyone, including yours truly. Up to the time of Harvey's demonstration, I was relatively satisfied that my students could, in a reasonable amount of time, synthesize acceptable speech by using the simplified allophone chart they were given. Harvey's Text-to-Speech demo made the old allophone chart look archaic!!

This is what the situation boiled down to: do I abandon the unwritten ZX81 User Code of Ethics which implicitly prohibits users from spending large sums of money (over ten bucks), in order to purchase a chip that costs more than a zx81? Sadly, I put my wallet back into my pocket, and resigned myself to the fate of all loyal ZX81 users: "If I wait a couple of years, I'll get it for $5 or else somthing better will come along."

This rationalization stuck in my craw for most of the summer, until a sudden flash of inspiration arced across my depressed synapses! Why not try text-to-speech in software? My pulse quickened as one trembling hand reached for the old allophone chart and the other hand plugged in the zx81 power pack. Somehow I would translate the essential allophone values into phonetic letter equivalents.

To my utter amazement, the implementation of a workable phonetic spelling system was actually very trivial! All one had to do was to define 52 variables that were spelled like phonetic sounds, using the numeric value for that particular allophone sound. For example, the sound for long "E" could be spelled as "EE", "IE", or "EA" in the most common English spellings. The allophone value for the long "E" sound is 19. Why not define three variables and set them equal to 19 (LET EE=19, LET IE=19, and LET EA=19)? When this is done, it does not matter whether you enter 19 when you are synthesizing speech, or whether you enter EE, or IE, or EA. All of these symbols now look like 19 to the computer and are processed as long "E" by the speech processor.

If you have written your own ZSPEAK programs, or if you are playing with Karl Brown's original programs, or the 2K version shown in the July/August'86 newsletter, you can easily modify your program to accept phonetic spelling input just by defining these 52 variables near the beginning of your program. Of course, the phonetic symbols are up to you, but the closer you keep them to English spellings, the closer you will simulate text-to-speech. I say "simulate" because true text-to-speech involves the use of about 500 spelling and pronunciation rules and these don't cover all of the exceptions or irregularities of the tortuous English language.

Here is a simple list of phonetic variables with their defined allophone values. Just add these to your favorite ZSPEAK program and from now on you can enter either phonetic spellings or allophone numbers -- whichever method you prefer to use at the moment.

PHONETIC VARIABLES

1	LET A=26		27	LET Y=25
2	LET AY=20		28	LET B=28
3	LET AI=20		29	LET C=41
4	LET AIR=47		30	LET CH=50
5	LET AR=59		31	LET D=33
6	LET AW=23		32	LET F=40
7	LET AU=24		33	LET G=34
8	LET E=7		34	LET H=27
9	LET EA=19		35	LET J=10
10	LET EE=19		36	LET K=41
11	LET EAR=60		37	LET L=45
12	LET EI=20		38	LET M=16
13	LET ER=52		39	LET N=11
14	LET I=6		40	LET NG=44
15	LET II=12		41	LET P=9
16	LET IE=19		42	LET R=51
17	LET O=53		43	LET S=55
18	LET OO=30		44	LET SH=37
19	LET OOO=31		45	LET T=13
20	LET OR=56		46	LET TH=18
21	LET OU=32		47	LET TTH=29
22	LET OW=32		48	LET V=35
23	LET OY=5		49	LET W=46
24	LET OI=5		50	LET WH=48
25	LET OA=53		51	LET Z=43
26	LET U=15		52	LET ZSH=38

You will, no doubt, notice that there are three phonetic symbols in the variables list that do not appear in English spelling. These were invented to circumvent the difficulty of two identical visual symbols having completely different sounds when they are used in different words. For example, the "OO" sound in "LOOK" and in "LOOSE", or the "TH" sound in "THOSE" and in "THICK". The "TH" in "THOSE" or in "THE" has been assigned the "TH" spelling, and the hard, less common "TH" as in "THICK" was assigned the "TTH" phonetic symbol. Similarly, the longer "OO" sound in "LOOSE" has been assigned the strange looking "OOO" spelling. Also, "I" is long "I", and "II" is the short "I" sound as in "HIT". If you don't like these symbols, feel free to invent your own.

There you have it. No look-up tables, no hardware modifications, just five minutes worth of programming! To coin another ZX81 expression: "SIMPLICITY IS BEAUTIFUL...but it took all summer."

5

Try this!!

This little program is for the 2068 in SPECTRUM mode.

THE PRINTER MUST BE OFF!!

```
20 CLS : FOR I=64 TO 87
30 POKE 23681,I
40 LPRINT "Vancouver Sinclair
Users Group"
50 NEXT I
60 PAUSE 0
```
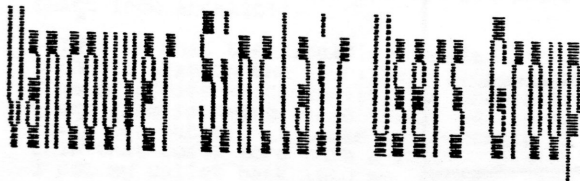
```
5 REM "pie chart"
10 CIRCLE 128,88,79: PLOT 128,
88: DRAW 0,78
20 LET t=0
30 INPUT "Percentage of Circle
? ";p
40 IF p=-1 THEN GO TO 200
50 IF p=100 THEN PLOT OVER 1;1
28,88: DRAW OVER 1;0,70: GO TO 2
00
60 IF p<0 OR p>(100-t) THEN GO
TO 30
70 LET t=t+p
80 LET a=360*t/100
90 PLOT 128,88: DRAW (78)*SIN
(a/180*PI),(78)*COS (a/180*PI)
100 GO TO 30
200 PLOT 0,0: DRAW 255,0: DRAW
0,175: DRAW -255,0: DRAW 0,-175
210 FOR t=0 TO 255 STEP 8: PLOT
t,174: NEXT t
220 FOR r=175 TO 0 STEP -8: PLO
T 254,r: NEXT r
230 FOR b=255 TO 0 STEP -8: PLO
T b,1: NEXT b
240 FOR l=0 TO 175 STEP 8: PLOT
1,l: NEXT l
250 INPUT "Label?"; LINE a$;"Po
sition? ";x;" ";y: IF y=32 THEN
GO TO 400
260 PRINT AT x,y;a$
270 GO TO 250
400 FOR t=0 TO 31: PRINT AT 0,t
;" ";: NEXT t
410 FOR r=0 TO 21: PRINT AT r,3
1;" ";: NEXT r
420 FOR b=31 TO 0 STEP -1: PRIN
T AT 21,b;" ";: NEXT b
430 FOR l=21 TO 0 STEP -1: PRIN
T AT l,0;" ";: NEXT l
440 INPUT LINE z$
450 PRINT AT 0,(32-LEN z$)/2;z$
460 STOP
470 SAVE "pie chart": RUN
```

Sinclair is still kicking

To the editor: Your issue of June 23 contains a serious error. It is not true that Amstrad Consumer Electronics plc bought Sinclair Research Ltd. [*Electronics*, June 23, 1986 p. 53]. They simply bought the existing computer range and the right to the use of the brand name. They have no right to any future computer products or any other product categories. A portable computer is under development, but by my team and for my company. We plan to launch it in the first half of 1987.

Sir Clive Sinclair
Chairman
Sinclair Research Ltd.
London

MURPHY'S LAWS OF COMPUTING

People always remember the last mistake you made.

He who hesitates is probably smart.

The one who does the least work always gets the most credit.

The less a peripheral system costs, the more it costs to fix.

Whatever happens, behave like you meant it to happen.

Confidence is the feeling you get just before you fully understand the problem.

When you get to the point where you fully understand your system, its probably obsolete.

As soon as you find that your computer is easy to use, add some peripherals you don't understand how to operate.

No matter what goes wrong with your carefully planned database system, there's always someone who says they knew it would.

It's only when you need to knock on wood that you realize that the world is entirely made up of aluminum and plastic.

The Province Sunday, Oct. 5, 1986

SLY HACKER

News Services

SAN FRANCISCO — A computer hacker with the code name Pink Floyd has rocked computer experts' sense of security.

In the past six weeks, the hacker has illegally tapped into computers at Stanford University, Lawrence Berkeley Laboratory, the University of Illinois, Massachusetts Institute of Technology and at least three unidentified Silicon Valley companies.

And he's been rubbing the computer security forces' noses in it, as he phones them and brazenly boasts he can't be caught.

So far he's been right. His skill has kept police and systems operators busy but unsuccessful in tracking him down.

One computer scientist who has helped the search says Pink Floyd once was tracked to a location in Washington, D.C. But the hunt for the hacker ended when it was discovered he had dialed successively through separate long-distance carriers.

Stanford officials say up to 60 campus computers have been broken into by the intruder.

They have found no damage to files or programs but Stanford has been forced to spend thousands of dollars patching security loopholes and changing system passwords.

ZVOICE

(c)1986 by W.RIGTER.

Like many of you ,I have been facinated by the idea of Speech Synthesis. I even bought a GI SP0256 chip only to have it sit on a shelf, silently gathering dust.

After all you need a ROBOT or I/O board to make it work,right?.

Meantime others were having fun and contributing to the growing library of speech programs for Karl B. ZSPEAK unit.

Then I saw Ken A. do a demo of Text To Speech in software and heard him describe the potential of such systems for students in the ESL program.

Well, I got hooked and decided to contribute something of my own.

After some discussion with Ken and Harry S.,it became apparent that at least 3 improvements might be needed to the existing ZSPEAK system:

1. Make it cheaper, simpler, compact.
2. Get rid of the screen flicker.
3. Improve the machine language driver.

ZVOICE is the solution to all 3

THE HARDWARE

For the first improvement I used the rule "Simplicity without compromise" to achieve the desired objective.

FIG.1 shows the resulting circuit:

a chip count that is hard to beat,a 50 percent reduction in size, and performance equal to the ZSPEAK SYSTEM.

The I/O ADDRESS remains the same as the ZSPEAK SYSTEM, and hence existing ZSPEAK SOFTWARE can be run unmodified on the new ZVOICE unit. Furthermore new software for the ZVOICE unit can used with the older unit.

The ZVOICE design takes advantage of the "on chip" I/O port of the SP0256 IC and uses the existing CPU clock signal instead of a crystal oscillator. The handshake SBY (active low when busy) signal is gated to the DATA bus with transistor Q1 when I/O address 37h is read. If not "busy" a 6 bit DATA byte can be written to I/O address 17h selecting the PHONEME to be voiced.

The ZVOICE unit can be used with the both TS1000/1500 and 2068 computers.

THE SOFTWARE

Item 2 on our wish list calls for "flicker free" operation and that means SLOW MODE for the TS1000.

But existing BASIC software has a hard time keeping up with a SP0256 chip hungry for PHONEMES.

Like a PRINTER BUFFER,a PHONEME BUFFER could be designed in hardware but this would add to the complexity and cost.

What about a SOFTWARE BUFFER with some MACHINE CODE to speed things up.

LISTING 1 shows a ML routine that does the job.

When combined with the basic program in LISTING 2, the user can assemble a PHONETIC WORD, PHRASE, PARAGRAPH or even a whole book of PHONEMES in a STRING VARIABLE BUFFER. Then using RAND 1 and RAND USR 16516,this BUFFER is loaded into the SP0256, one PHONEME at a time,while the printed version of the spoken phrase can be viewed without screen flicker.

The ML routine RETURNS to BASIC when it finds the last phoneme in the BUFFER which was set to a value greater than CHR$ 127.
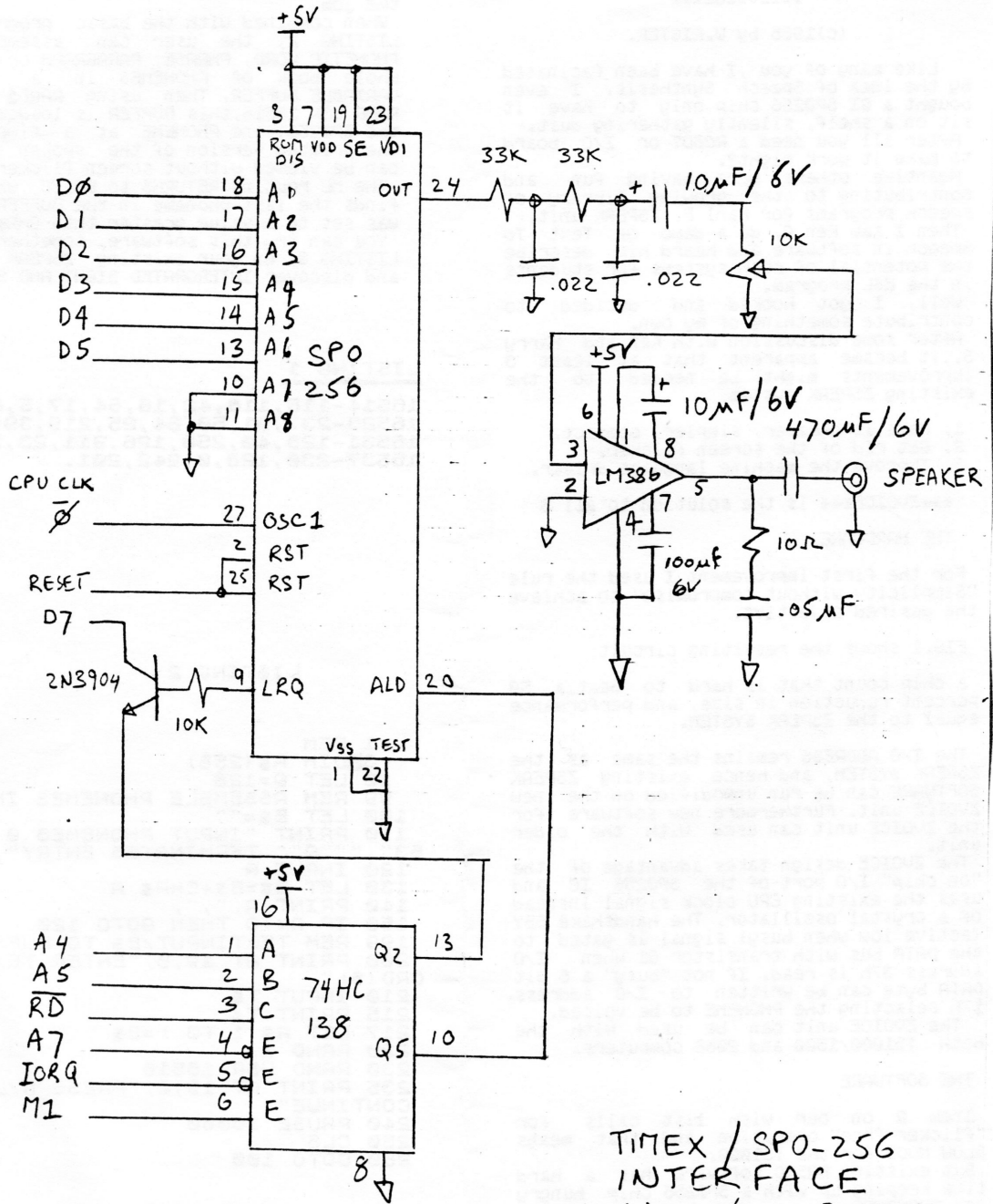
You can try this software, together with LISTING 3, on your existing ZSPEAK units and discover INTERGRATED SIGHT AND SOUND.

LISTING 1

```
16514-118,118,42,16,64,17,5,0,25
16523-237,91,50,64,25,219,39,230
16531-128,40,250,126,211,23,35
16537-230,128,0,242,201.
```

LISTING 2

```
1 REM
3 DIM A$(256)
10 LET Q=128
99 REM ASSEMBLE PHONEMES IN B$
100 LET B$=""
110 PRINT "INPUT PHONEMES 0 TO
63","""Q""" TERMINATES ENTRY"
120 INPUT A
130 LET B$=B$+CHR$ A
140 PRINT A;",";
150 IF A<>Q THEN GOTO 120
199 REM TEXTINPUT/B$ TO BUFFER
200 PRINT AT 19,0;"ENTER TEXT W
ORD(S)"
210 INPUT T$
215 PRINT T$
217 LET A$(1 TO )=B$
220 RAND 1
230 RAND USR 16516
235 PRINT AT 19,0;"PRESS N/L TO
CONTINUE"
240 PAUSE 10000
250 CLS
260 GOTO 100
```

This is a schematic diagram of the Timex/SPO-256 Interface.

Main chip (SPO 256):

Left side pins:
- D0 → 18 A1
- D1 → 17 A2
- D2 → 16 A3
- D3 → 15 A4
- D4 → 14 A5
- D5 → 13 A6
- 10 A7
- 11 A8
- CPU CLK Ø → 27 OSC1
- 2 RST
- RESET → 25 RST
- D7 → 2N3904 → 10K → 9 LRQ
- 1 VSS
- 22 TEST

Top pins: 3 ROM DIS, 7 VDD, 19 SE, 23 VD1, +5V

Right side: OUT 24, ALD 20

Output audio section:
- OUT 24 → 33K → 33K → 10μF/6V → 10K
- .022, .022
- +5V
- LM386 (pins 6, 1, 8, 3, 2, 5, 4, 7)
- 10μF/6V
- 470μF/6V → SPEAKER
- 100μF 6V
- 10Ω
- .05μF

Lower chip (74HC138):
- A4 → 1 A
- A5 → 2 B
- RD → 3 C
- A7 → 4 E
- IORQ → 5 E
- M1 → 6 E
- 16 +5V
- Q2 → 13
- Q5 → 10
- 8

TIMEX / SPO-256
INTERFACE
(c) 1986 W. RIGTER

SOFTWARE DETAILS

For those of you wishing to delve deeper into this concept,HANG ON TO YOUR HEADS.

The ML routine in LISTING 1 is deceively simple but conceptually powerful.

As a CORE routine, called from a BASIC or ML program, it expects to find the PHONEME BUFFER in the FIRST VARIABLE of the variable area and uses an OFFSET passed in SYSTEM VARIABLE "SEED" to point to the start of the phoneme phrase to be voiced.

This means that a number of such phrases can be arranged in the buffer, with the start of the selected phrase pointed to by "SEED".

The ML routine ADDS the offset to the start of the buffer. The SBY line is tested using IN A,(27). The program loops until bit 7=1 Then phonemes are loaded using LD A,(HL) and OUT (27),A . The program loops until phoneme to be loaded has bit 7 set. This is tested using AND A,80, after which the routine returns to the CALLING PROGRAM

If the calling program is MACHINE LANGUAGE ,a slight variation may be used where the SBY polling loop can JR Z,08 to return to the calling program with the Z flag set ,allowing the program to excecute other stuff BETWEEN PHONEMES.

This might provide a continuous speech output while writing data to the VIDEO SCREEN (ie a face with lips moving while speaking).
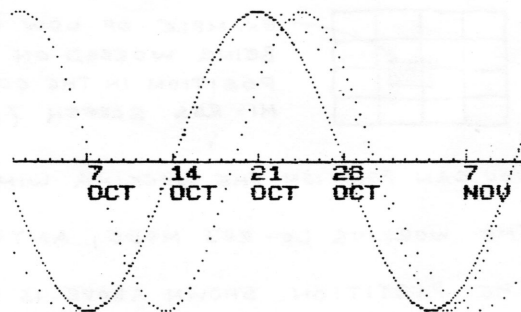
WOW that left me kind of breathless.

A slower but effective method uses a BASIC calling program which executes the other stuff BETWEEN WORDS when a *PAUSE* occurs. Still longer pauses between sentences can be used to do FLOATING POINT calculations which may require more time.

Careful PROGRAM ORGANIZATION provides smooth results, with the apparent execution of 2 simultaneous tasks.

True multitasking can be achieved by rewriting the video routine at 281h which is excecuted 60 times per sec , and calling this routine by loading the IX register with the starting address of the new video routine. Considerable fine tuning is required to synchronize with the video timing but the results are worthwhile for this application which could include BUILDIN COMMANDS for VERBAL SCREEN COPY ,LSPEAK,etc.

This is the same technique used for SOFTWARE HIRES GRAPHICS.

‡‡‡ This article will be ‡‡‡
‡‡‡ concluded next issue.‡‡‡

```
intellectual=··················
  emotional=------------------
   physical=··················
```



```
  7    14   21   28    7
 OCT  OCT  OCT  OCT   NOV
```

SINC-ARTIST HI-RES GRAPHICS PROGRAM
REVIEW

BY GERD BREUNUNG

PLEASE REVIEW JOHN BROHMAN'S ARTICLE ON SINC-ARTIST 1.3 (C) 1984 JAMES HASTINGS-TREW IN THE DEC. 1984 ISSUE OF THE NEWSLETTER FOR THE T/S USERS GROUP IN VANCOUVER, B.C., CANADA. THE GRAPHICS PROGRAM IS DESCRIBED IN DETAIL, AND I FOUND EVERYTHING TO BE CORRECTLY EXPLAINED.

IF YOU ARE FAMILIAR WITH THE PROGRAM AND HAVE ADDED THE 8K BATTERY BACKED-UP NVM DESCRIBED IN OUR NEWSLETTER ZX APPEAL, JULY/AUGUST 1986 ISSUE ON PAGE 25, YOU CAN IMPROVE THE WORKINGS OF THIS GRAPHICS PROGRAM BY USING THE SINC-ARTIST HR (C) 1984 J. HASTINGS-TREW AND (C) 1986 W. RIGTER. THE HR VERSION IS DESIGNED FOR NVM'S LIKE THE BUILT-IN OR THE HUNTER BOARD.

SO, WHAT IS DIFFERENT ABOUT THE NEW VERSION? HERE IS SOME BACKGROUND INFORMATION: THE HI-RES SCREEN IS DIVIDED INTO 16 WINDOWS RECTANGULAR IN SHAPE AS SHOWN BELOW
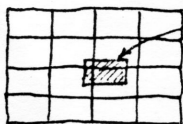
EXAMPLE OF LOW REZ SCREEN BEING WORKED ON AND IT'S POSITION IN THE COMPLETE HI-RES SCREEN (SLIDING WINDOW)

YOU CAN POSITION THE WORKING WINDOW, WHICH FILLS THE SCREEN IN THE WORKING LO-RES MODE, ANYWHERE ON THE HI-RES SCREEN. THE PARTITION SHOWN ABOVE IS FOR ILLUSTRATION ONLY.

IN THE 1.3 VERSION YOU CAN CHECK WHERE ON THE HI-RES SCREEN YOUR WORKING SCREEN IS LOCATED - YOU CANNOT SEE THE HI-RES SCREEN - YOU CAN ONLY PRINT IT.

IN THE NEW HR VERSION HOWEVER, YOU CAN VIEW THE ENTIRE HI-RES SCREEN BEFORE YOU SEND IT TO THE PRINTER. THE HI-RES PICTURE IS STORED IN AND DISPLAYED FROM YOUR NON-VOLATILE MEMORY, NVM. STANDARD DYNAMIC RAM PACKS CANNOT DISPLAY BIT MAPPED HIGH RESOLUTION GRAPHIC, HI-RES, BECAUSE THEY GENERATE REFRESH ADDRESS INTERNALLY, BEYOND CONTROL OF THE CPU, WHICH MUST BE ABLE TO FETCH VIDEO DATA FROM RAM.
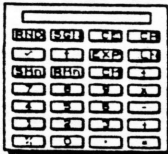
A FURTHER IMPROVEMENT ON THE ORIGINAL VERSION IS THE ADDED MULTIPLE GRAPHIC FILE MANIPULATION CAPABILITY. IT IS NOW POSSIBLE TO DRAW A PICTURE, STORE IT IN A STR$ VARIABLE USING THE "BACKUP" COMMAND AND CONTINUE DRAWING. IF AN ERROR HAS BEEN MADE DURING SUBSEQUENT DRAWING, IT IS POSSIBLE TO DELETE THE PRESENT PICTURE AND BRING BACK THE PREVIOUS ONE BY EXERCISING THE "RESTORE" COMMAND. ONE IS NOW FREE TO TRY AGAIN. ALSO, USING THE "SWAP" COMMAND, YOU CAN COMPARE BETWEEN THE STORED AND THE CURRENT PICTURE. THE NEW, IMPROVED HR VERSION IS JUST AS USER FRIENDLY AS THE ORIGINAL ONE BUT WITH ALL THE DESCRIBED ADDITIONAL BENEFITS.

I TRIED THE PROGRAM AND I HAD NO PROBLEM RUNNING IT ON MY BUILT-IN NVM. PEOPLE WHO ALREADY HAVE A HUNTER BOARD CAN ALSO USE THE HR PROGRAM; HOWEVER, SOME SMALL MODIFICATIONS HAVE TO BE MADE TO THE HUNTER BOARD (WHICH DO NOT RESTRICT IT'S UNIVERSAL USE). THESE MODS ARE CLEARLY DESCRIBED IN THE INSTRUCTIONS SUPPLIED WITH THE H.R. TAPE.

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This article is reprinted from the Aug/Sept issue of Sinc-Link. One word of caution...I put one in my 2068 and all works well except when resetting in Spectrum mode ...then the machine emits the most alarming noise of displeasure.

TS2068 RESET AND INITIALIZATION PROBLEMS WITH SOLUTION

Are you tired of having to use the 2068's ON-OFF power switch to reset the computer? Read on, there is a solution.

Do you have a Larken disk system and also one common AC power switch to turn on your computer, disk drive, disk controller, monitor, and all other peripherals? If you do, you've no doubt experienced the inconvenience of having to shut your computer OFF and then ON again in order to initialize properly. Read on, for there is a solution.

Do you have a 2068 with a wired-in Spectrum ROM and are having some problems with the computer not initializing positively on the Spectrum ROM without having to turn the computer's power OFF & ON a number of times? There is a solution!

The solution is very simple and would cost less than $6.00 in our lowly Canadian Dollars.

If you have one or all of the above problems--- install a RESET push-button (P.B.) and a small 10 mfd. tantalum capacitor and your problems are resolved.

INSTALLATION

The 2068 has an existing circuitry that automatically resets the computer whenever the power switch is turned ON. Fig.1 shows this circuit in a simplified schematic form. The solid lines along with resistor R43 and capacitor C21 are the existing reset circuitry. The dotted lines show the required additional components---the pushbutton (P.B.) to provide the means for manual RESET (whenever you wish) and capacitor CR to provide positive initialization on power up.

FIG.2 shows the suggested placement of the RESET P.B., capacitor CR and wiring. To install these, you will have to remove the top of computer (containing the keyboard).

Drill a 1/4 inch hole on the rear lip of the portion of the computer and mount a mini P.B. A preferred location is near the monitor jack, but leave sufficient space for convenient push-button finger reset action.

Use color-coded wire (black & red preferred) and solder one end of these wires to the protruding leads of the capacitor C21. Make certian that the red wire is soldered to the +ve lead of C21. Twist the wires and run the wires neatly to the P.B. Connect the wires to the P.B. leads but do not solder. Now connect the 10 MFD. capacitor CR to the respective leads of the push-button, making certian that the +ve lead of the capacitor CR is connected to the push-button lead containing the red wire. If this is correct then solder the wires and capacitor CR to the push-button. This completes the installation.
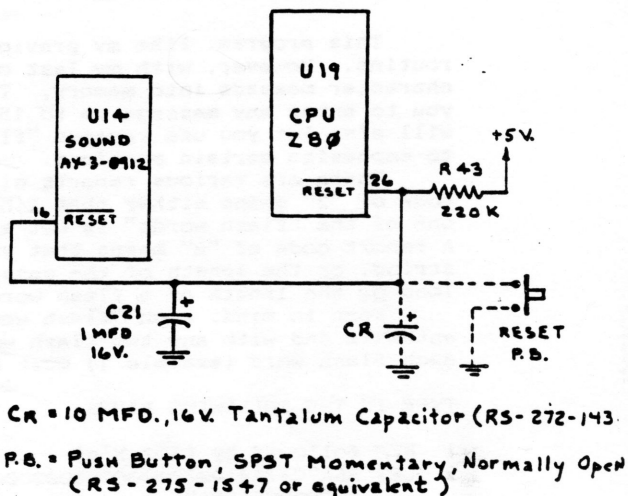
Have fun!
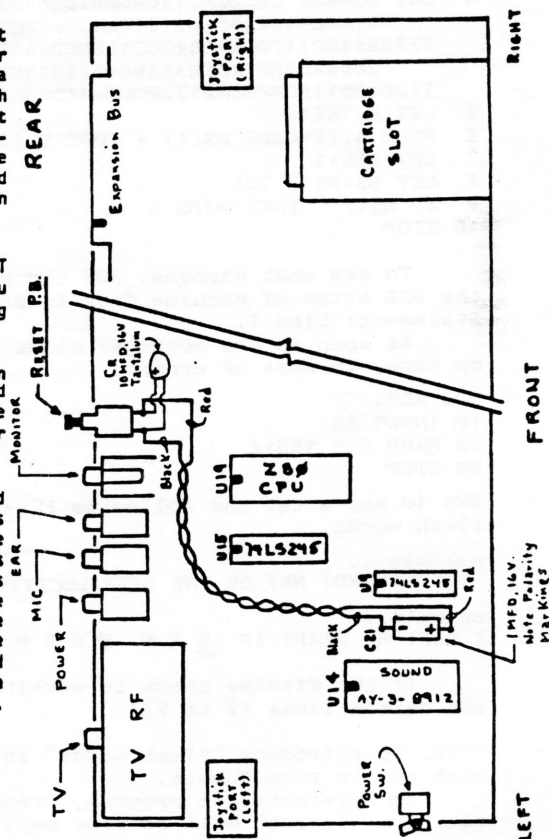
Charlie Urban
(416) 293 6789

CR = 10 MFD., 16V. Tantalum Capacitor (RS-272-143

P.B. = Push Button, SPST Momentary, Normally Open (RS-275-1547 or equivalent)

FIG. 1 SCHEMATIC - 2068 RESET CIRCUIT

FIG. 2 - 2068 COMPONENT LAYOUT, TOP VIEW

SCROLLER

For the TS-1000/1500/ZX-81

by Theo Turk
July 7, 1986

This program, like my previous one is a basic "Scroll left" routine. However, with my last one, I could only enter a 64 character message into memory. This program not only allows you to enter any message up to 15K characters in length but will also let you use various "flash words" in your message to emphasize certain portions.

There are various reports given, if in error. A report code of "2" means either that line 10 has been omitted or that one of the "flash words" is not enclosed by parenthesis. A report code of "B" means that you are trying to enter an empty string, or the length of the message in A$ is <32 characters long or the length of a flash word is >25 characters long.

Keep in mind, each "flash word" must be enclosed by parenthesis and with any two flash words, the first character in each flash word (example 1) must be separated by >=32 characters.

TYPE IN THE FOLLOWING LINES:

```
1  REM followed by (300 X's)
2  LET B$="C32A41000000000000000000000000000260DFF11FFFF062519D0
        10FE000018F6"
3  LET B$=B$+"210000228940062D ED5B7B402A85407EFE11280BFE102008
        22874ED538940AF23121310EA2A89407CB5C8ED5B8F40A7ED52
        C021FA00CD94402A87402322874C3E111619010000BE28080323 1520F8
        C34B0D79FE1AD2AD0EED438B400603C52A89403A8B402336003D20FA
        21FA00CD9440ED5B8940132A8740ED4B8B40EDB021FA00CD9440C110D6C9"
4  LET B$=B$+"CD2B0F213D40061D361B2310FB2A0C40114B0119227B40
        11040019228F4021914022164 0CD1C11DA4B0D234E234678B1CAAD0E
        232285402 11F00A7ED42D2AD0EED438D40CDA14021B603CD9440213200
        CD94402A85407E325B40545D23ED4B8D400BEDB02B113C401A77
        213D40011F00EDB0213200CD9440CDA140CD460F38CDC9"
5  LET A=16514
6  POKE A,16×CODE B$(1) + CODE B$(2) - 476
7  LET A=A+1
8  LET B$=B$(3 TO)
9  IF B$<>"" THEN GOTO 6
10 STOP
```

To see what happens, RUN the program and in a few minutes the 300 bytes of Machine Code in B$ will be placed into the REM Statement; Line 1.

As soon as the computer stops in Line 10, then SAVE a copy on tape, in case of errors.

NOW ADD:
```
10 INPUT A$
20 RAND USR 16514
30 STOP
```

RUN 10 and enter the following line which will include (2) flash words.

example...
"(CLEVELAND) MAY BE THE BEST LOCATION IN THE NATION, HOWEVER,

example...
I LEFT MY HEART IN (S A N F R A N C I S C O)."

If the display seems to working correctly, press "break" and delete lines (2 to 9).

NOTE. to introduce "flash words" into any message, simply enclose each one in parenthesis.

to terminate the program, press "break". NOTE: any error return or "break" will destroy part of the message stored.

Dear Distributor,

You have now received the first issue of Canada Computes! Your package contains the number of papers you have ordered.
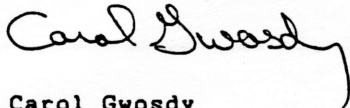
As we have discussed, Canada Computes! can be provided to your customers entirely free of charge.

Canada Computes! will be published again in November and we will continue to send you the same number of copies. Canada Computes! will be published monthly in the new year.

I would like to take this opportunity to thank you for your participation in this new publication.

If there is any change to your distribution needs, please contact me by phone or mail. We are also interest in any ideas for subjects for future issues or any other suggestions that would improve Canada Computes!

Thank you for your cooperation,

Carol Gwosdy
Marketing

SIGNAL BOOSTER

Correct cassette loading problems-by HAL SOHN, SINCUS

The signal booster consists of one miniature audio transformer. The transformer is used as an interface between the computer and the cassette player.

Example:

The signal booster has the following advantages:

1. Isolates the computer from the cassette player which eliminates noise.
2. Increases the audio signal amplitude.
3. Cassette player volume setting can be adjusted to a lower level, thus improving the signal/noise ratio, this lower level setting decreases the inherit noise caused by high level of volume setting of volume control of most cassetter players.
4. Increased signal amplitude, allows for misalignment of the record/playback head, which causes low signal amplitude.
5. No power required.
6. LOW COST

This little gadget is sheer magic! I put one together and completely solved all my loading problems with the T/S/ 2020 recorder....Rod

SCHEMATIC: T1
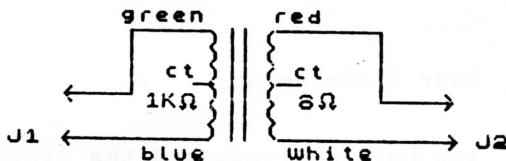
CONSTRUCTION

1. Drill two 0 .250 (1/4 inch) holes in a plastic pill bottle, one thru the cap, and the other thru the bottle bottom.
2. Solder transformer leads to jacks (J1) and (J2) as per schematic, then insert into plastic bottle.

NOTE: Don't use a metal container, the metal prevents the proper isolation and grounding between the computer and the cassette player.

Parts list

1. T1-1K CT. to 8 ohms-Radio shack (273-1380)
2. J1 - J2 Radio shack (274-297)
3. Plastic pill bottle to fit transformer

When using signal booster use a lower volume setting for best results.

Not so trivial Trivia

1. What is the largest number of pennies (1¢ pieces) considered to be legal tender in Canada?
2. How did the Dolly Varden, a variety of char (fish) get its name?
3. What are the six categories for which Nobel prizes are awarded?
4. Five of the above categories are presented by Swedes, the sixth is presented by a Norwegian. Which one is it?
5. The cheetah is known as the world's fastest animal. What is its top speed; (a) just over 71 miles per hour (b) just over 55 miles per hour, or (c) just over 63 miles per hour?
6. In 1813 she walked 20 miles through the bush to warn Colonel James Fitzgibbon of a planned attack by American troops on a British outpost. Who was this sweet young woman?
7. Mrs. Adelaide Hoodless was a Canadian of great achievement, yet most Canadians have never heard of her. What were her accomplishments?
8. Canada's highest mountain is Mount Logan, at 19,524 feet. What is the second highest?
9. What Canadian island is further south than the California/Oregon border?
10. What do the following songs have in common: "Mademoiselle from Armentieres", "It's a Long Way to Tipperary", and "There'll Always be an England"?
11. Canada has the world's largest freshwater island. What and where is it?
12. Reginald Fessenden, born in East Bolon, Quebec, is called the "Father of Radio". Why?
13. What was the useful gadget invented by Canadian Gideon Sundback in 1891?
14. Who was the only European monarch to be buried in the United States?
15. Abner Doubleday, called the "Father of Baseball", organized and codified the rules of baseball. He is also famous for another reason, unrelated to sports. What historical event was he involved in?
16. A win by an underdog player or team is commonly referred to as an "upset". This usage of the word started when a famous race-horse was beaten by a relatively unknown thoroughbred. Name the famous loser, and also the reason the result was called an upset.
17. The word "googol" was coined by 9-year-old Milton Sirotta, and popularized in his mathematician uncle's book "Mathematics and the imagination" (by Edward Kasner). What is a googol?
18. "The Long White Cloud" is the English translation of the name given to what country by its discoverers?
19. Spanish explorer Manuel Quimper called it "la Montana del Carmelo", to the Indians it was Coma Kuishan, or simply Kuishan. What is the modern name of this geographic feature familiar to Vancouverites?
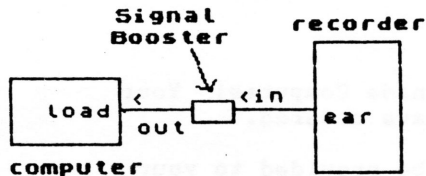20. The concept of "five flavours", in Chinese cuisine incorporates what five tastes?

Answers

1. 25
2. Named for a character in Charles Dickens' novel, "Barnaby Rudge".
3. Peace, physics, chemistry, literature, physiology or medicine and economic science.
4. The Nobel Peace prize
5. (a)
6. Laura Secord
7. This Canadian woman founded the Women's Institute (now a world-wide organization), and helped establish the Victorian Order of Nurses, the Y.W.C.A. of Canada, the Macdonald Institute at Guelph, and the National Council of Women.
8. Mount St. Elias, which is in the same mountain range as Mount Logan, the St. Elias Mountains in Yukon Territory. (18,008 feet)
9. Middle Island in Lake Erie, Ontario.
10. Manitoulin Island in Lake Huron.
11. Not only are they all wartime songs, but they were all written by Canadians.
12. Fessenden succeeded in broadcasting voices through air without wires BEFORE Marconi. He achieved the first radio telephone conversation, the first two-way radio communication, and the first radio broadcast of music and voice.
13. The zipper fastener.
14. King Peter II of Yugoslavia.
15. In 1861 when the Confederate Army shelled Fort Sumter, Lieutenant Abner Doubleday was in charge of Battery "D". Upon being given the order, he touched off the cannon and thus fired the first Union shot of the Civil War.
16. The famous horse, Man-of-War was beaten by a horse named Upset, and the winner's name became part of sporting language.
17. A number, so huge it has few useful applications: simply put, it is the number 1 followed by one hundred zeros.
18. New Zealand. The Maoris called it Aotearoa.
19. Mount Baker.
20. According to fourth century Taoist philosophy, bitter, salt, sour, hot and sweet should be incorporated into a meal to achieve complement and contrast.

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TIMEX TIPS
By Chuck Dawson

QUESTION: I am new to machine code programs and I would like to ask a basic question: If I call a short MC routine from within a BASIC program, how do I get the result back to a BASIC variable so I can use it?

ANSWER: This question keeps being asked, so I am glad to try to help. There are two ways to approach this problem. When a number has been manipulated by the various registers, it can be stored for later use by loading it into an unused memory location (or more usually two). After returning to BASIC, the number can be recovered by LET A=PEEK loc + 256*PEEK (loc+1). Several numbers could be calculated by the MC part of the program and stored in different locations. All you have to do is remember where you put them. If the MC routine produces only one answer to be transferred to the BASIC program, a short-cut method is to leave the answer in the BC register (TS-2068 and Spectrum) or the HL register (TS-1000 or TS-1500). If the routine was called by the line LET a=USR (64000), then when the MC routine RETURNs control to BASIC, the value that was in BC will now be in the BASIC variable A. If you called the routine with PRINT USR (64000), then the answer will be printed on the screen upon RETURN

QUESTION: I have a problem with a program which includes user defined characgers. It works just fine in the normal mode, but when run with the OS-64 (64 column cartridge), the user characters do not work.

ANSWER: When the TS-2068 is switched into one of the enhanced display modes like the 64 column, the user defined graphics are moved from 65386 to 63256. If you have defined a character for GRAPHIC A, for example, by POKING values into addresses starting at 65386, then you have poked the wrong location when in enhanced mode. It should have been 63256. You would have to change that location each time you switch from one mode to the other. A good way out of this is to use the built-in GRAPHIC ADDRESS CALCULATOR. That is, calculate the starting address of GRAPHIC A by the expression LET address=USR 'A'. Then you can POKE address and address+1 and address+2, etc. No more changing the program by hand each time you plug in or out the 64 column cartridge. By the way, if you like to put machine code in a REM statement at the beginning of your program, it, too, will move when in enhanced mode. Always use PEEK 23635+256*PEEK 23636 to calculate the beginning of the program listing. Add five to get the correct USR call location if the MC starts just after the REM keyword in the first line of the program.

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i DON'T SEEM TO BE WiNNiNG THE WAR AGAiNST ANYTHiNG...

"I can't help you, but let me put you on hold just to get rid of you."